

FEDERAL AVIATION ADMINISTRATION

FAA Air Transportation Centers of Excellence

Fact Sheet

Center of Excellence for Aircraft Noise and Aviation Emissions Mitigation (PARTNER)

Established: September 2003

Research Areas:

- o Noise and Emissions Measurements
- o Aviation Effects on Air Quality and Climate
- o Noise and Emissions Impacts on Human Health and Well-Being
- o Compatible Land Use Management
- o Aircraft Operational Procedures for Reduced Noise and Emissions
- o Design and Analysis of Current and Future Aircraft Technology
- o Aviation Alternative Fuel Opportunities, Challenges, Emissions Characteristics
- o Interdependencies Among Technology, Policy, Operations, Economics, Environment
- o Tools and Analysis to Inform Decision-making
- o Communication and Continuing Education

Sponsors: FAA Office of Environment and Energy, NASA Aeronautics, and Transport Canada

Web: <http://www.partner.aero>

The Center of Excellence (COE) for Aircraft Noise and Aviation Emissions Mitigation (PARTNER) collaborates with its sponsors, FAA, NASA, DOD, and Transport Canada, and a broad range of stakeholders to enhance the understanding of aviation environmental issues, and foster a quieter and cleaner environment. In addition to its core sponsors, Center activities are supported by the Department of Transportation Volpe National Transportation Systems Center, the Department of Defense, and the Environmental Protection Agency.

The Center of Excellence is a long-term partnership of academia, industry, and government to foster technological, operational, policy, and workforce advances for the betterment of mobility, the economy, and the environment. The group conducts research and engineering development to increase understanding of aviation's environmental impacts, and to develop and assess options for mitigating these impacts.

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The knowledge and capability gained from this research provides government, industry, communities, and policy-makers with new scientific understanding and analysis to employ when addressing aviation's environmental impacts. COE members and industry affiliates have provided more than \$27M in matching contributions.

Examples of current research:

- o Emissions Characteristics of Alternative Fuels
- o Emissions Atmospheric Impacts
- o Health Impacts of Aviation-Related Air Pollutants
- o Noise Exposure Response
- o Health Effects of Aircraft Noise
- o Sonic Boom Mitigation
- o Sound Structural Transmission
- o Open Rotor Noise Impact On Airport Communities
- o Continuous Descent Arrival
- o Airport Surface Movement Optimization
- o Environmental Cost-benefit Analysis of Ultra Low Sulfur Jet Fuels
- o Life-cycle Analysis of Alternative Jet Fuels
- o Metrics for an Aviation CO2 Standard
- o Economic and Environmental Effects of a Cap-And-Trade Policy in Aviation
- o Tools to Assess Technology, Operations and Policy Options for Mitigation

University Partners:

Massachusetts Institute of Technology - Team Lead
Georgia Institute of Technology
Harvard University
Pennsylvania State University
Purdue University
Stanford University
Missouri University of Science and Technology
University of North Carolina
York University

Other University Participants:

Cambridge University, University of California at San Diego, University of Houston, University of Illinois, Urbana-Champaign, University of Reading, University of Sheffield.

Industry, Professional and Community Affiliates:

One of PARTNER's great strengths is its advisory board. Members include aerospace manufacturers, airlines, airports, national, state and local government, professional and trade associations, non-governmental organizations and community groups. They are united in the

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desire to foster collaboration and consensus to jointly advance environmental performance, efficiency, safety and security. A complete list of members is available at <http://web.mit.edu/aeroastro/partner/about/board.html>

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